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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,821	05/13/2005	Ken-ichi Masumoto	2005-0796A	8749

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EXAMINER	
RAINEY, ROBERT R	
ART UNIT	PAPER NUMBER
2629	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,821	MASUMOTO ET AL.	
	Examiner	Art Unit	
	ROBERT R. RAINEY	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 May 2005*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 May 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. The amendments to claims 9 and 14 filed 5/20/2008 effectively overcome the 35 U.S.C. § 112 rejections of claims 9 and 14.

2. Applicant's arguments, see section II pages 10-11, filed 5/20/2008, with respect to drawing objections have been fully considered and are persuasive. The objections to the drawings in the previous office action are withdrawn based on the submitted amendments to the claims and drawings.

3. Applicant's arguments filed 5/20/2008 regarding the 35 U.S.C. § 103(a) rejections of claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "a circuit for discharging a residual electric charge in the light emitting element after stopping the application of the DC forward voltage, **and then** feeding a reverse current to the light emitting element" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. **Claims 1-12** rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As newly amended, claim 1 requires "... a circuit for discharging a residual electric charge in the light emitting element after stopping the

application of the DC forward voltage, and then feeding a reverse current to the light emitting element...". In the previous version of the claim and in the specification is disclosed that the reverse current is a result of the discharging of a residual electric charge but no where is there a disclosure that includes discharging the residual electric charge and then feeding a reverse current. This would require some motive element and switching structure that is not disclosed. While the prior art described in the instant application at [0002]-[0017] and Fig. 10-12 describe the application of a reverse current using a motive force other than the discharge of the residual charge there is no disclosure as to how this is to be combined with the disclosed circuitry for discharging the residual charge. Claims 2-12 depend from claim 1 and thus inherit the same defect.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0098829 to *Chen et al*. ("*Chen*") in view of U.S. Patent No. 5,723,950 to *Wei et al*. ("*Wei*").

As to **claim 13**, *Chen* discloses an active matrix OLED/PLED pixel driving circuit and in particular:

A light emitting device comprising:

a current feeding circuit (see for example Fig. 3A at least item 34);

a first switching element (see for example Fig. 3A item 33); and

an organic electro luminescence element having an anode connected with the first switching element and a cathode connected with the earth (see for example Fig. 3A item 36 and [0014]; note that it is well known that OLEDs are organic electro luminescence elements; that the cathode connects to earth, i.e. a return potential, would have been fairly suggested to one of ordinary skill in the art),

wherein an end of the first switching element is connected with the current feeding circuit (see for example Fig. 3A).

Chen does not expressly disclose a second switching element such that the circuit comprises:

a push-pull circuit including a first switching element and a second switching element that are cascaded; and

an organic electro luminescence element having an anode connected with a connecting point of the first switching element and the second switching element, and a cathode connected with the earth,

wherein an end of the push-pull circuit is connected with the current feeding circuit, and another end of the push-pull circuit is connected with the earth.

Wei discloses a precharge driver for light emitting devices (see for example title) that include organic LEDs with an associated internal capacitance (see for example 1:53-1:57 or 2:58-3:5) and in particular:

a push-pull circuit including a first switching element (see for example Fig. 1 item 20) and a second switching element (see for example Fig. 1 item 21) that are cascaded; and

an organic electro luminescence element (see for example Fig. 1 items 11 and 12; note that 1:53-1:57 and 2:58-3:5 point out that item 12 is a lumped capacitance element that represents the capacitance of the OLED device as well as that of the wiring) having an anode connected with a connecting point of the first switching element and the second switching element (see for example Fig. 1), and a cathode connected with the earth (see for example Fig. 1 and 2; the cathode is connected through transistor 30, which during the switching described in Fig. 2 "... operates as a current sink" 4:44-47, so it is connected in the sense that a circuit path can be traced from the cathode to earth as well as in the sense that an electrical path to earth is provided during the operation of the first and second switches),

wherein an end of the push-pull circuit is connected with the current feeding circuit and another end of the push-pull circuit is connected with the earth (see for example Fig. 1).

Chen and *Wei* are analogous art because they are from the same field of endeavor, which is matrix type displays.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to add the push-pull element drive arrangement disclosed by *Wei* to the drive circuit of *Chen* for example by replacing the single FET33 with dual FETs such as FETs 20 and 21, with appropriate polarity considerations. The suggestion/motivation would have been to provide advantages such as to discharge the capacitance of the display element and any signal line capacitances quickly in order to assure quick extinguishment of light emission.

As to **claim 14**, in addition to the rejection of claim 13 over *Chen* and *Wei, Wei* further discloses that the push-pull circuit connects the anode of the organic electro luminescence element with the earth through the second switching element by turning on the second switching element, the second switching element being located between the connecting point and the earth (see for example Fig. 1 noting the connections of transistor 21).

As to **claim 15**, in addition to the rejection of claim 14 over *Chen* and *Wei, Wei* further discloses that a current for lighting the organic electro luminescence element is fed from the current feeding circuit to the organic electro luminescence element through the first switching element when the first switching element is turned on and the second switching element is turned off (see for example Fig. 1 and 4:16-39), and subsequently the residual charge in the organic electro luminescence element is discharged through the second

switching element when the first switching element is turned off and the second switching element is turned on (see for example Fig. 1 and 2; note that when transistor 20 is turned off and transistor 21 is turned on the direction of current through the lumped element capacitor 12, I.sub.C, is reversed representing the discharge of the capacitor; as previously noted this capacitor represents the capacitance of the OLED as well as other capacitances thus the discharge of the capacitance associated with the OLED is taught; further note that the fact that Wei describes several other benefits and functions of the circuit does not detract from the fact that it also discharges the residual charge in the organic electro luminescence element).

As to **claim 16**, in addition to the rejection of claim 13 over *Chen* and *Wei, Chen* further discloses that the current feeding circuit includes a capacitive element (see for example Fig. 3A item 35) for accumulating an electric charge supplied by a power supply terminal and that a lighting current is fed to the organic electro luminescence element through the first switching element from the capacitive element of the current feeding circuit when the first switching element is turned on; and *Wei* further discloses that a lighting current is fed to the organic electro luminescence element through the first switching element of the current feeding circuit when the first switching element is turned on and the second switching element is turned off (see for example Fig. 1 and 4:16-39).

As to **claim 17**, in addition to the rejection of claim 16 over *Chen* and *Wei, Chen* further discloses that the organic electro luminescence element performs static lighting by charging the capacitive element of the current feeding circuit with the electric charge when the first switching element is turned off (see for example Chen Fig. 3A and [0009]).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication No. 2001/0055458 to Ladd teaches that OLED material is a type of electro-luminescent material.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT R. RAINEY whose telephone number is (571)270-3313. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RR/

/Amare Mengistu/

Supervisory Patent Examiner, Art Unit 2629